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B213025 I

Western Medical Times

Subscriptions, $1.00 per year, in advance. Single Copies, 10 cents.
Entered at the Postoffice at Denver, Colorado, as mail matter of the Second Class.

Denver Medical Times founded in 1882 by Thomas Hayden Hawkins, A.M., M.D. Published Monthly by the Medical Times Publishing Co., Denver, Colo.

VOL. XLI DENVER, COLO., OCTOBER, 1921 No. 4. (Full No. 477)

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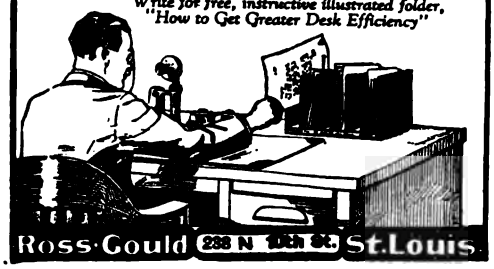

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Western Medical Times

VOL. XLI DENVER, COLO., OCTOBER, 1921 No. 4

The Physiological Treatment of Cancer.

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Two propositions are placed before us, viz: Cancer the unknown, and diathermia the known. In order to come to a logical conclusion as to their relationship, we must admit certain premises. While it is recognized that we do not know just what a cancer cell (an abnormal cell) is, nor why it is, we do know something about normal cells and their physiology. It is also possible that by comparing the physiologic activity of normal cells with that of malignant ones that we may be enabled to draw a picture illustrating their difference. As by comparative anatomy we differentiate species, we may, by comparative physiology, differentiate normal from malignant cells.

When in the course of this article the term cancer is used, it is with the full appreciation of its limitation. I am using the term cancer here because it is a typical representative of malignant growths, and the one whose physiology is most favorably influenced by diathermia.

Cellular Pathology.

Fifty years ago Virchow, in his "Cellular Pathology" gave positive proof of the dictum that "Every animal appears as a sum of vital units, each of which exhibits all of the characteristics belonging to life." He further believed that the character and unity of life are referable not to any single locality, of a higher organization—for example, to the brain of man—but rather to the definite, constantly recurring arrangement which every single element bears to itself.

Taking the correctness of this view for granted, the composition of a larger body of the so-called individual must always depend upon a social arrangement. It represents, in fact, a social organism in which there is a mass of single existences, related to one another in such a way that every element has its own special activity and each, when excited to activity by other parts, does its work and performs its physiological function of and by itself.

Metabolism.

It is also necessary to bear in mind that even the simplest form of cell is a highly organized compound body and that each of the component parts possess and perform their own special function. Thus the constructive metabolism as well as the entire assimilative process of the cell is presided over by the nucleus, which at the same time furnishes the physical basis upon which the transmission of the hereditary character of the cell depends.

The cytoplasm of the cell body, on the other hand, is concerned in those phases of metabolism which result in the liberation of energy in movements of various kinds and the formation of new chemical substances in harmony with physiological requirements. All physiological structure and function depend upon the equilibrium of tissues maintained by mutual restraint of the component cells; destruction of a single integer, or group of integers of a tissue or cell, removes a corresponding amount of restraint at the point changed or injured and therefore de-

*Read before the Society of Medico-Physical Research, held at Chicago, Oct. 7th and 8th, 1920.

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stroys the equilibrium and permits an abnormal exhibition of bioplastic energies. Under ordinary circumstances, when all of such cells are in proper anatomical relationship to each other, this abnormal bioplastic activity, following a trauma, may be viewed as a compensating hyperplasia.

Recovery from an injury sustained, or a compensation of the interfered with function, would be the result. In cancer (malignant growths) we do not have anatomical and physiological relationships. When endothelial cells makes their appearance where epithelial cells ought to be, and vice versa, there can no longer be "That mutual restraint between component cells"; neither can there be "the formation of new chemical substances in harmony with normal physiological requirements.

Bodily Harmony.

In the human economy we have brain cells, muscle cells, fat cells, liver cells, kidney cells, epithelial and endothelial cells, nerve cells and a host of wandering cells. Each and every cell can and does perform only the function for which it is intended; it can perform no other.

In order for each cell to perform the physiological function for which it is intended it must have the assistance as well as the proper mutual restraint exercised by its neighboring cells. In other words, it must be in harmony with its environments.

Malignant growths are misplaced cells, and like misplaced individuals in the community—the shoemaker trying to be a druggist, for instance—they individually never kill anybody except as the unphysiological chemical activity of such misplaced cells does poison and kill the individual.

Cells.

The whole human economy is made up of various kinds of cells; each kind of cell is formed and placed according to the physiological function it is to perform. In fact this apparently complex human body can be reduced to very simple elements, viz: Cells and the intercellular substance to which they give origin. These two elements make up every tissue; there are no other elements.

In some places the cells are in excess, as in the epidermis. Here they seem to be almost in contact with each other, while in other tissues the intercellular substance predominates. This is true in the connective tissue. It goes without saying that such a distribution is not promiscuous, it is so distributed by nature. When, however, cells of a certain type are found where they do not normally belong and where the relation of cells and the intercellular substance is abnormal or atypical, then such a new growth is either a displaced, a misplaced, or at least a superfluous lot of cells. They have no normal relationship with themselves or with their neighboring cells. Such a new growth of cells has no normal physiological function to perform, yet it lives and performs a function out of all normal relationship to physiology. According to the unphysiologic manner in which this new growth does perform its function it may either be benign or malignant it is entitled to and has received the term cancer.

Cancer Cells.

Ordinarily when the term cancer is used in a medical sense (it has not the significance of the understanding of its histological nor its anatomical make-up) it means the abnormal physiologic function which such a growth causes to the detriment of the organism as a whole.

A wart is an over-accumulation of epithelial cells upon a surface or place where they do not normally belong. A wart, then, is a new growth made up of otherwise normal cells; it is an anatomical malformation; it is a displacement or a misplacement of cells. The tissue metamorphosis of a wart, however, in no way seems to interfere with the normal physiological function of the individual. Such growths are considered as benign, because their abnormal anatomical formation as well as location seem to be their only offence.

A malignant growth, on the other hand, generally grows rapidly and

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tends to enlarge continuously. It consists of tissue which is markedly atypical. It is as a rule surrounded by no capsule, but infiltrates progressively the surrounding tissue. After apparently complete removal it recurs. Whether removed or not, secondary growths are common in the nearest lymphatic glands or in distant parts, or in both.

General Health and Cancer.

Though a patient is often in excellent health at the time of the first appearance of the tumor, he sooner or later wastes, looses strength rapidly and becomes very anemic. Cachexia is produced. This is due to many causes, e. g., to the normal tissues the loss of nutriment required for the active growth of the tumor cells; to the metabolism of the latter; pouring abnormal excreta into the blood, to pain and anxiety, often to profuse discharge and septic absorption consequent upon ulceration; occasionally to actual interference with the ingestion and absorption of food, sometimes by interfering with, preventing or perverting the physiological functions of other vital organs. The more rapidly and the more completely a tumor produces these results, the greater do we consider its malignancy.

The Theory of Sajous.

In all probability it is not, as Doctor M. Sajous seems to think, that malignant growth is the result of perverted function of the ductless glands, but rather that the unphysiologic, biochemic product of the cancer cell causes an inhibition or perversion of the normal activity of the ductless glands.

Such a view furnishes us with another reason why the misplaced malignant cells should be compelled to cease the production and the liberation of this unphysiologic, biochemic substance, rather than their removal should receive our first and practically only consideration, especially after they have been in existence for some time.

Dr. James Ewing of New York City in a recent address upon "Bone Tumor" before the Huntington Medical Society, stated that in osteo-sarcoma operation or amputation serves only to remove the offending part, neither saving nor prolonging the life of the individual; tumors which originate from the medullary substance should never be amputated, while currettage does no harm, it is unnecessary; the giant cell sarcoma should neither be amputated nor curretted, the X-ray or Radium has given much better results in the last two conditions than surgical intervention.

Healthy vs. Unhealthy Cells.

It is an axiom in physiology that a healthy cell or a healthy vigorous organism will resist harmful chemical or physical agents which will be fatally effective on one that is unhealthy or frail.

Atypical cells in malignant growths are believed to be so abnormal as to be less resistant and less vigorous than surrounding healthy tissue. The fact that cancer cells grow into and destroy healthy tissue or even the whole organism does not bespeak of the strength of the cancer; it simply proves that a weak or atypical cell may nevertheless functionate in such an unphysiologic manner that its biochemic products tend to destroy normal cells.

The bite of a poisonous reptile will surely kill, yet the reptile cannot be said to be stronger than its victim.

We are not prepared at this time to state definitely just what takes place in a malignant growth that causes ultimately the death of the patient. Of one thing, however, we are sure, it is not the anatomy of the growth but the physiology — perverted physiology — which is so inimical to life.

Recurrence, metastases and death occur as the result of the unphysiological chemical activity of the misplaced cells. This chemical substance manufactured and liberated is taken up either by the lymphatics or the blood vessels. Once within the circulatory fluids of the body this chemical substance "cancer juice." causes in a susceptible individual the formation and springing up of more of such misplaced cells. They in turn form more of this

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chemical substance, which later forms combinations with normal cells. This combination either inhibits or augments some of the normal functions of the more highly organized structure, such as the ductless glands, or it may cause a perversion of their function.

It would certainly be thought rash by many—indeed, it would be rash—at the present time to formulate a new theory of cancer. But so long as numerous laboratories are engaged in cancer research and several journals, published in different parts of the world, are devoted exclusively to the publication of results achieved in this field of study, physicians may well pause now and then to listen to a summary of what has been brought to light. It is in a spirit of such interest that we venture to refer to a recent review by Leo Loeb of the Washington University School of Medicine at St. Louis. We quote Leob's own words:

"All the factors which in various ways either by chemical or physical means increase the proliferative energy of cells may act as causes of cancer; these conditions are not different from those growth stimuli which lead to regenerative and what might be called correlative growth in normal tissues; added to these factors are in certain cases factors residing within the cells, which make these cells more responsive to other growth stimuli, thus providing a sensitization which in other cases is furnished by sensitizing substances carried to the cells from other organs. In order to lead to the formation of cancer in many cases several of such factors must co-operate. Some of these factors are hereditarily transmitted in a certain graded quantity from generation to generation, while the other factors are variable and extraneous. All of these factors have one characteristic in common: They all increase the growth energy of normal tissues either directly or indirectly, the latter by sensitizing the tissues to the action of growth stimuli."—Jour. A. M. A., Sept. 11, 1920.

A Theory.

We are well aware of the fact that the human organism is endowed with certain defensive powers against toxins. In most of the infectious diseases an antitoxin is formed. The office of this antitoxin is to neutralize the toxins. Since all of the infectious diseases are self limited, the function of the system is to furnish enough antitoxins to neutralize the amount of toxins present. If this antitoxin formation is adequate, the patient recovers, but if inadequate he succumbs.

In cancer the proposition is somewhat different. The disease is not self limited, on the contrary, the cancer grows day by day and pours out more and more of its toxic material. The general system is called upon to produce the all necessary antitoxin which must be adequate in amount and adequate in quality. It does this for weeks and months, and the patient is not even aware of it. There comes a time, however, when the system fails, the patient sickens and the cancer is discovered.

At this time we have two almost equal forces at work; the one producing a daily increasing amount of toxins, the other furnishing an almost equal amount of antitoxin. The toxic material is produced by and limited to the cancer cells present, while the antitoxin is the result of the combined effort of the entire system.

The antitoxin, what there is of it must be and is of the same strength as the toxic material, if it were not so, it could never neutralize the toxin.

At this time the surgeon may with one stroke, remove the entire growth and the toxin production ceases as suddenly.

What happens to the antitoxin production and other neutralizing and sensitizing substances? It simply goes on; it having no function to perform becomes as unnecessary now as the toxin was originally. Like the toxin it must also be neutralized. The only thing that can neutralize it, is the previous toxin. To produce this, it is necessary for the system to again establish the original cancer cells either in near or distant parts of the body, in an already more than susceptible individual, hence, recurrence in the nearest lymphatics or evoked by the bloodstream in distant

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organs, especially the lung, liver, etc., may be the result.

Thermic Influences.

Before venturing a therapeutic measure of any kind, we ought to have a thorough appreciation of the theory underlying such a measure.

The performance of all physiological function depends upon thermic influences. The liver functionates best under a temperature of 107 F., that same temperature transferred to the brain would cause an immediate over-activity in the form of delirium and hallucinations.

When the general body temperature falls below a certain degree drowsiness is inevitable; the exposed person sleeps and freezes to death, all cellular function ceases.

Normal physiology is performed by organs and cells within a certain narrow range of temperature variation. Increase or decrease for even short periods interferes markedly with the performance of function.

Some Research Findings.

In the third report of the Imperial Cancer Research Committee (1908) Haaland, at the suggestion of Ehrlich, undertook some tests with heat upon cancer tissue intended for inoculation. The result was that when such tissue was heated for thirty minutes to 111.2 F., that the tissue was no longer viable when transplanted. Haaland came to the conclusion from these tests that cancer cells succumbed more rapidly than sarcoma cells. Jenson repeated the experiment and, in the Annual Report of the New York State Cancer Laboratory, 1910, shows that all cancer cells die when heated to 116.6 F. for thirty minutes. Loeb found that sarcoma cells died when exposed to a temperature of 113 F. for thirty minutes; Vidal showed that nearly all tumor growth was arrested with a continuous temperature of 104 F. Lambert in 1912, pointed out the relationship that exists between the degree of heat and the time of action on malignant as well as on normal cells. A continuous temperature of 108 F. for twenty-four hours destroyed sarcoma cells; 109.4 F. only required six hours; 111.2 F. required fifty minutes, while a temperature of 114.8 F. acting for twenty minutes was sufficient to destroy all viability in sarcoma cells.

Vaccines and Temperature.

Vidal emphasized his belief that whenever vaccines, toxines, serums, etc., are injected, that there ensues a general rise of temperature and that this rise of temperature in the patient is responsible for the good effects in malignant growths.

I have been convinced that the apparently good results following the injection of the vegetable compounds in cancer are directly proportionate to the general rise in temperature they cause. When there was no constitutional temperature reaction, there was no result and vice versa. The exploiter of this compound makes the admission that it is not so much the compound that counts as it is the technic and the judgment of suitable cases. In other words, the patient must have a constitution that is capable of reacting to the injection by a hemolysis.

Heat Electrically Applied.

Electric coagulation, cathophoric sterilization, fulguration and cauterization are methods wherein heat is used to a degree of complete destruction of malignant cells in situ. I shall omit the description of these because they are in reality akin to surgery; they attempt to kill, destroy and remove the offending cells from the system in toto.

Physiological therapy does not consider the histological nor the anatomical formation or location of malignant growths; it endeavors to deal only and entirely with the physiology of such cells.

It has clearly been shown that heat of a certain degree destroyed tumor cells, yet in no way affected sound tissue. It is also a well-known fact that dry or moist heat applied to the living body can only penetrate three to five millimeters. All of the good effects observed from the application of moist or dry heat is due to the gradual heating of the entire blood volume and to the reflex effects of local heating.

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High-Frequency Heat Effects.

In the diathermic phase of a high-frequency current we have an agent that heats the tissues through and through without practically exerting any influence upon the outside. A malignant growth is of a much firmer, harder consistency and with a lessened circulation than normal tissue; it is therefore especially adapted to the storing and the retaining of heat, when this is artificially supplied. In fact the malignant mass is always of a higher temperature after applying diathermia than the surrounding normal tissue. Under these circumstances it is easy to maintain a tissue or an organ in a state of elevated temperature for hours.

From practical experience it has been shown that when the entire malignant growth is subjected to an increase of three degrees of temperature for sixty minutes daily its physiology is markedly interfered with. Cachexia is prevented or removed; the tumor mass undergoes a retrograde metamorphosis, individual nodules soften and they become smaller and finally disappear; pain ceases entirely; discharges lessen and lose their offensive odor.

Technic of Diathermia.

In selecting cases for the diathermic method of treatment, it is only necessary to use ordinary common sense. A moribund patient is no more a fit subject for diathermia than he is for operative procedures.

Reference has been previously made to the thermic effects upon cancer cells. In all of those tests the cells had been removed from the patient for the purpose of transplantation. It was then shown that these cells, after the application of certain degrees of heat to them were no longer viable, therefore did not produce cancer upon the experimented animal. It is not our desire to remove cancer cells and then destroy them. We intend to leave the cells in situ, but by the application of an electric current cause them to become heated to exactly the same degree of temperature as the experimented cells. It is not our object to interfere with their anatomy, but we do want to change their physiology. To do this it is necessary to include the entire tumor between the two electrodes of a high frequency current. With breast or superficially situated skin cancers this is quite simple. With uterine and rectal cancers, while a little more complicated and uncertain; nevertheless practical results may be achieved in eighty per cent of the cases.

In cases of breast cancers, a suitable electrode is applied directly over the lesion, the other electrode containing at least four times the surface area is placed directly opposite upon the dorsum of the patient. The current is turned on to the point of tolerance, which is usually about fifty milliamperes to each square inch of the anterior electrode. If the skin overlying the growth is as yet intact, the reading may go as high as one hundred milliamperes per square inch. From forty-five to sixty minutes should be consumed for each treatment, repeated daily or at least on alternate days.

When the growth is situated in the cervix uteri, or rectum, a suitably shaped electrode is placed in position, then a larger posterior electrode is placed on the skin of the abdomen and back of the patient, these two large electrodes are short circuited and led to one binding post of the high-frequency machine. The uterine as well as the rectal cavity will bear temperatures considerably higher than the external skin. It is not uncommon to use 200-300 milliamperes per square inch of area in these mucus membrane applications. The treatments should be given daily or at least on alternate days for at least two months, then once per week for an indefinite time.

Let it be thoroughly understood that the application of diathermia does not necessarily remove the growth, but it does interfere with the physiology of the cancer cells in such a manner that the previously present cachexia disappears, there is complete cessation of pain, all lymphatic enlargements subside, the patient gains weight and appears to all intents and purposes normal.

After diathermia has been used for a sufficient length of time, and these

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constitutional changes have been brought about, there is no reason why the growth should not be removed surgically, because practically all chances of recurrence have been removed. The growth which was previously malignant, may now be looked upon as a benign tumor and dealt with correspondingly.

301 West 91st Street.

Prophylaxis in Cardio-Vascular Diseases.

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According to Dublin's Actuarial reports for the 10-year period ending with 1910, the deaths from apoplexy had increased 18.8%; from Bright's Disease, 18.1%; while from organic heart lesions they had increased 39.3%.

We should accept these figures with some reserve, however, because conclusions reached by lay-men, as to the incidence of fatalities are apt to compare unfavorably, as to accuracy, with similar analyses made by medical men.

In this particular instance we happen to know that there is such a close association in character between the diseases already named, that they cannot fail to have occurred to some extent synchronously. For a common cause such as a valvular disease may have produced both apoplexy and Bright's Disease, which then would have been merely complications of the organic heart affection. Now, while we notice further that in Dublin's reports heart diseases constitute causes of death, as compared with apoplexy and Bright's Disease, in the proportion of two of the former to one of the other two, his report cannot be taken as authoritative because he offers no autopsical evidences in confirmation of his figures.

There is another point of interest in this connection, which is as to the relative fatality of heart diseases and tuberculosis. While we are prepared to accept the common dicta that heart diseases in respect to incidence of fatalities come only second to tuberculosis, we are lacking in reliable statistics on the point. For here again we are confronted with the known fact that these diseases frequently co-exist in the same individual. Indeed miliary tuberculosis of the heart does exist, though it is a rare complication. At the same time it is no uncommon thing for a death to be ascribed to a heart lesion when in reality it was due to some other cause, such as cerebral hemorrage; or the name may have been a convenient cover for concealing the real cause of death, in the absence of a post-mortem examination.

And these statements accentuate the contention that similar percentages based merely on clinical facts should not be accepted as satisfactory evidences, unless corroborated by post-mortem findings. On the other hand post-mortem findings are also misleading unless backed by clinical histories. Fortunately so much reliable post-mortem work has been done during the last 25 years or so, in this country, that we have ready at our hand, in our best hospitals, suitable data for getting fairly accurate percentages. We should make use of them in order to elucidate these problems, and establish, so far as possible, the real percentages of incidence and fatality. Otherwise, we will continue to wander in the dark.

Of course the subject of prophylaxis involves etiological factors and among others we find a large array of infections, including diphtheria, typhoid and the various cutaneous diseases, such as small-pox and the cutaneous of children, like measles. It is probable that the heart is much more frequently affected in these diseases than we have heretofore suspected, because in them the myo-cardium is apt to take the brunt of the poison. But the weak and somewhat dilated organ may give com-

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paratively little evidence of its implication.

In all the acute cardiac diseases we anticipate a cure eventually, as a rule, or such amelioration of the unfavorable symptoms that a practical cure is the result. In the chronic conditions, however, whether valvular or myocardial, while we do not anticipate a complete cure, so at least that the tissues are restored to a complete degree of health, we hope for, and usually get, palliation. And yet there are some chronic lesions that may be curable or fairly so. Take for example, the fat heart of obesity. If we can reduce the general adiposis we may relieve the heart of its overload of fat, to some extent; but the heart will retain its load of fat longer than other organs of the body. Also in anaemia and chlorosis, dilation of the cardiac chambers may be relieved at least to a considerable extent. So too, a mal-position as in lateral curvature, can often be rectified.

It is not proposed to discuss here prophylaxis in its relation to congenital heart diseases. So far as we know there are no remedies that will prevent them. In this connection attention is called to statements by Dr. Robert S. Lee, (Boston Med. & Surg. Journal, Jan. 29, 1915), in which he ascribes as causes of heart disease: Rheumatism in 46%; nephritis in 19%; arterio-sclerosis in 15%; and syphilis in 12%; a total of 92%; leaving 8% for other causes not mentioned. Some of these tendencies or conditions are inherited, but they may be the result of acquired disease. As for the first named, just as neuropathies, lithaemia, and some cutaneous disorders are handed down from parent to child, so in cardio-vascular conditions. For example, we recognize in some families that the arterial vessels are too small to nourish the body adequately. Again, there may be an inherited metabolic inadequacy, disturbing the functions of the cardio-vascular system. The torpid liver is an illustration of a metabolic defect. So the system may at times be easily overburdened by the operation of the systemic processes necessary for the upkeep of the body. For, in order to transform the crude materials taken from the outside world into available fuel for internal consumption, while at the same time ridding the system of waste products, an unusual burden may be imposed on the cardio-vascular system. This diminishes its activities and meanwhile subjects the system to the toxic influence of the products, during their elimination.

In plain language, a familial tendency to small vessels, Bright's Disease, diabetes, rheumatism and gout, migraine, obesity and empoverished blood is a matter of general acceptance by our profession. And yet the frequency of the incidence varies.

Under these circumstances and especially in view of the fact, which is not to be denied, that chronic heart diseases are for the most part incurable, it is apparent, nevertheless, that we should do all in our power to prevent them. As may be inferred from a knowledge of their etiology we have often a good prospect of successful treatment in the acute forms, and in the chronic, a better outlook than was formerly believed possible.

But to obtain the full measure of a possible success there should be intelligent co-operation on the part of the individual and the community. Singularly, with all the study that has been devoted, and successfully, to the prophylaxis of such diseases as typhoid, malaria and yellow fever, the second greatest scourge of those already mentioned should have merited so little attention comparatively.

In the matter of the diseases of bacterial origin, such as diphtheria, we are led to believe that the germs enter through the avenues of the nose and throat, just as the typhoid bacillus does, and so possibly the streptococcus of pyorrhea, all of which produce heart disease, according to the evidences at hand.

Now while in these toxaemias, the germ is supposed to be associated mainly with the toxins of the streptococcus variety, there are also other bacteria of a poisonous nature intermixed with them. For example, in lobar pneumonia there is the pneumococcus, and in meningitis the meningococcus. When the heart is involved it may be an endocarditis due to a scarlatina, or

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a myocarditis due to influenza or typhoid. Among other infecting germs there is the gonococcus of gonorrhea and the spirochaete of syphilis.

Any one of these microphytes may at times cause acute implication of the heart. There are also other pyogenic germs that are capable of producing acute heart affections, notably those of puerperal fever and septicemia. In fact, any purulent focus in the body may produce an infection of the heart. In the great majority of instances, however, it is lithaemia that is the greatest offender. Probably two-thirds of the cases are due to it. It is a blood disease hard to prevent and hard to cure, when once the system is burdened with the poison. The heart lesion may also be the immediate cause of death in typhoid and influenza, chiefly through the myocardial involvement. In the latter the myocardium may not recover for months or years, if at all. But while the heart may suffer in its myocardium, it is the endocarditis that is the greatest danger so far as sudden death is concerned.

In typhoid, however, the myocardial disease may persist after convalescence and become chronic. In fact the whole circulatory system is pervaded by the poison in typhoid and the result is possibly thrombosis with dilated veins of the extremities, usually of the right leg, which may persist throughout life.

As to the prevention of infective diseases the matter is chiefly in the hands of the health authorities, who are able to institute measures on a large scale to meet emergencies. And yet individuals can accomplish a great deal by quarantine of the infected individual by avoidance of crowds, having infected tonsils removed, and purulent foci evacuated.

So far as prophylaxis in venereal infection is concerned, I have taken up this matter elsewhere. Syphilis is a cause of heart disease in, at least, 10% of cases. (N. Y. Med. Journal, Oct. 30th, 1920, and Medical Record, Aug. 21, 1921.)

Inasmuch, also, as anaemia and chlorosis are causes of heart diseases, causing dilation of their chambers, efforts should be made, not only to improve the conditions of the blood, but to contract the dilated heart. Both these objects can be attained by proper medication, in many instances.

Passing now to the mechanical causes of heart diseases, we may be quite sure that they sometimes result from severe muscular exercises, such, for example, as lifting very heavy weights, especially if the efforts are rapid or repeated at frequent intervals. Competition bouts as in athletics, come under this head, especially in fast work. What actually happens to the heart is rupture of its fibers. The wounds will heal but cicatricial tissue will remain and though the new fibrous tissue will be firm in texture, the musculature will have dilated. And, except when the tear has been small, the organ will remain more or less permanently enlarged, the increase in size corresponding to the size of the tear. I have had such a patient under my care recently. He is now practically well, however.

Again, we may have dilation of the chambers of the heart from prolonged neurotic activity, causing arrhymnia and tachycardia. The causes may be mentral distress or strain, perhaps dissipation.

The abuse of coffee, also, will produce heart diseases in persons who cannot take it without suffering from palpitation. There are many such, but with them it is an idiocyncrasy. In fact coffee is usually a good heart tonic and so is tea. But anything that causes tachycardia will eventually produce dilation, and if it is continued, the condition will become chronic. Accordingly, no exercise should be taken that causes a tachycardia which persists after a lapse of a few hours, and this should be the test in deciding whether or not one should play tennis, golf or any game that calls for unusual muscular activity. Excess in the use of alcohol is apt to produce an excessive deposit of fat in the walls of the heart, possibly a fatty degeneration. The result is dilation of the cardiac chambers and weakness of their walls. The fat heart is pretty sure to be an accompaniment of obesity. Unfortunately, if we succeed in reducing the general obesity, the heart is the last organ to give up its fat.

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With these preliminary statements we are prepared to attack a problem which is one of the most important before the medical profession today.

In the matter of preventing the infective diseases of children, already alluded to, the matter is one both for the individual and the community. Since these cases have come under the purview of the Health Authorities their numbers have greatly diminished, and to that extent they have ceased to be active agents in producing heart diseases. If we, as physicians, are not prohibitionists as to coffee, tea and tobacco, we should, at least, preach moderation in the use of alcoholics. And yet they are useful remedies, at times. Moderation will subserve a more useful purpose, however, than prohibition. Alcoholics have been in use from the earliest times. Total prohibition can not, and never will, be enforced. But luxurious living which includes devotion to matters of the table should be deprecated. We eat too much, as a rule, and unwisely, and we are not sufficiently orderly in our habits. Every person should be acquainted with his constitutional peculiarities and his dietary should be made to conform to it.

If to these considerations there are added regular hours, regular exercises and a regulation of the bowels, many inherited tendencies that tend to cardio-vascular complications may be kept in subjection. Then the burden of an undue weight thrown on this system will be greatly lightened.

At the moment we are interested with the newer problem, acidosis. Proper handling of it will go a long way towards the prevention of lithaemia and so of those varieties of heart disease that are caused by it.

There are two points on which there is apt to be misapprehension on the part of the community, viz.: those of rest, as opposed to exercise in the prophylaxis and treatment of heart diseases. The truth is that when a sound heart has been overtaxed, in any way, it should be given rest; while under ordinary conditions of health, exercise that is moderate, but systematic, strengthens the organ. A special method of treatment that calms and strengthens a neurotic heart is the carbonated bath, followed by graduated exercises. If anyone who has approached middle life should take a course of the now well-known Nauheim treatment, he would be benefited. It acts as a prophylactic. But this is not a new doctrine.

In the matter of tennis and similar games, they do the sound heart no harm in youth. Golf, however, is more useful in middle age and declining years. If these games are impracticable, a two hour walk can be taken in good weather; while at other times home exercises may be substituted. They can be made effective if intelligently planned and carried out.

7 East 80th Street.

An Intravenous Solution Accepted by the Council on Pharmacy and Chemistry, in the Journal A. M. A., Sept. 10th—The Council on Pharmacy and Chemistry reports the acceptance, among N. & N. R. *Loeser's Intravenous Solution of Mercury Oxycyanide, each ampoule containing* 5cc *of solution representing* 0.008 *Gm.* (1/8 *grain*) *Mercury Oxycyanide N. N. R. prepared by the New York Intravenous Laboratory.* The acceptance of the Council of an intravenous solution marks the first step in the recognition of intravenous medication by these authorities. Thousands of physicians, employing the intravenous method, will welcome this action of the Council as a sign of tendency toward general acceptance of the intravenous method. It would appear from the remarks of the Council in past issues of the Journal, that the point of issue between them and the manufacturer lies in the use of the term "safe and practical," as employed by those skilled in the preparing of intravenous solution in their approach to the medical profession. It is to be hoped that the Council will decide to carry on clinical trial to substantiate the evidence that has been accumulated by thousands of general practitioners over the country and abroad. Such a trial and its report could further the progress of an improvement in the administration of U. S. P. and standard remedies of established therapeutic value.

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Relation of Gastric Secretion to the Diagnosis and Treatment of Gastric and Duodenal Ulcer.

TENTH PAPER

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In the chemical analysis of gastric secretions we usually think of various per cent of free and total acidity, seldom do we determine peptic ferment. This is due to the fact that pepsin is rarely absent or if it be absent it is duplicated by the trypsin of the pancreatic juice and the erepsin of the intestinal juices, and also that gastric symptoms are so frequently associated in our thinking with gastric acidity.

The per cent of free or total acidity varies as greatly in the absence of gastric disease as when gastric symptoms or gastric disease are present. The term hyperacidity really means a certain group of symptoms; viz., hunger, pain, burning, distress, feeling of fullness after eating, gas, dull ache; relieved by food or alkalies, and which are accompanied by motor symptoms such as belching, eructions, painful peristalsis or spasm, and a low tolerance of acid, rather than increased acid secretion above the normal.

It would thus appear that acidity per cent is only a factor in the gastric symptom complex, and that it is to be considered as a symptom rather than an etiological factor of organic or functional disease. Its etiological influence being due to its accidental presence, the real etiological factors being organic gastric disease or disturbed gastric function.

The determination of acidity percent is of very little value in the diagnosis of organic gastric disease or gastric dysfunction. Even gastric cancer has little effect on gastric secretion until it has infiltrated the gastric glands sufficient to destroy a good portion of the secreting surface. This may occur late in the cancer growth, and diagnosis may be made by other symptoms and tests before any marked secretory changes occur. Besides cancer frequently involves the antrum and pylorus or fundus which do not have acid glands.

Fully 35% to 50% of gastric or duodenal ulcers have average gastric acidity, at least 15% below the average, and 35% to 50% above the average. Acidity above the average is no sign of ulcer, neither is the presence of acidity below the average evidence of the absence of ulcer.

In routine chemical examination of gastric contents we find increased or decreased hydrochloric acid, achlorhydria and achylia with no symptoms of indigestion or disturbance of gastric sensibility. On the other hand gastric digestion and sensibility are disturbed with average gastric acidity. The frequent occurrence of such relations is evidence of more than mere coincidence, and any one who has made a large number of gastric analyses is impressed with the dissimilarity of gastric secretion and gastric disease or gastric symptoms.

Disease or disturbance in function along the gastro-intestinal tract modify gastric secretion, either to increase or decrease the same and change its character. This is illustrated in disease of the gall-bladder or its ducts, appendicitis, colitis, spastic constipation, ileal stasis, tumor growths, mechanical irritation, obstruction, disease of rectum, etc.

In kidney or uretral culculi, renal tuberculosis and other infections and inflammations of the kidney or ureter, in disease and malfunctions of the generative organs, in organic cardiac disease, in tuberculosis or other inflammations of the lungs, in reflexes from somatic structures, the amount and character of gastric secretion is markedly influenced.

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Gastric secretion is likewise influenced by nerve stability and nerve irritability. This is observed in the unstable, fatigued and irritable nerve centers of the neurasthenic; or in the perversions of interpretation of sensory stimuli as in the hypochondriac. Also in the distorted ideas and judgments, indecision, apprehension, suggestibility, doubt and fear of the psychasthenic; or the loss of conscious control over acts, sensations and emotions as in the hysterical individual.

The effects of the major depressive and exhilerating emotions are well known. Likewise disease of the nerve centers alters nerve response with disturbance of gastric function. Or relative stable nerve centers may become hyperirritable from constant and amplified stimuli from disease or dysfunction whether physical, nervous or mental, and gastric function may be proportionately disturbed. Similarily do we find modifications of gastric secretion in metabolic disturbance and in endocrinopathies. Discussion of these various factors would go beyond the limits of this paper.

It would thus appear that so many extragastric influences modify the secretory function of the stomach that we are not justified in diagnosing disease of the stomach from the character and amount of gastric secretion. Indeed the determination of gastric acidity gives little evidence of gastric pathology or the etiology of gastric dysfunction, except in the diagnosis of spurious from true achylia by the fractional method.

However the determination of gastric acidity, whether high or low, rather than definite percent is of value first: because of its influence on gastric tone and motility, gastric emptying and gastric pain, and second: because of the necessary information it gives us in the treatment of disturbed gastric function and organic gastric disease, especially gastric and duodenal ulcer.

The fasting stomach is rarely empty and is in a state of tonic contraction. It contains peptic enzymes and, except in achylia and occasionally cancer, hydrochloric acid. These secretions apparently aid in maintaining gastric tone. at least clinical evidence seems to indicate that gastric tone, motility and irritability are exaggerated in the presence of free acidity. This is very evident in gastric or duodenal ulcer where the presence of free acid may increase the gastric tone, motility and irritability adequate for pain. However, we may have gastric pain in gastric or duodenal ulcer in the presence of average or low acidity, and in extragastric disease or dysfunction in which gastric acidity may vary from 0 to 120 points.

Several factors probably enter into the explanation of epigastric pain in these conditions. The pain may be a referred (not reflex) gastric pain, or it may be due to hyperirritable nerve centers from persistent stimulation, or it may be a reflex over the sympathetics to the stomach or over the spinal sensory nerves to the epigastric somatic structures, or stimulation of the sympathetics may produce vascular changes in the epigastric viscera adequate for pain, or the aboral progress of contents in the upper gastro-intestinal tract may be sufficiently inhibited, because of the disturbance of the natural downward order of forces, to produce pain. This disturbance and reversal of forces is very evident in the nausea and vomiting accompaning these conditions.

We must likewise remember that the greater sensibility and irritability of the stomach and duodenum (upper tract) renders them more susceptible than other portions of the gastro-intestinal tube to functional or organic disturbance in the tract, or to reflexes from functional or organic derangement in the viscera. Likewise because of embryological development the mind refers visceral pain to the midline, and because from early childhood we have been taught to localize abdominal pain in the "stomach".

According to the chemical theory, the full truth of which I question, the pylorus is controlled by a neuromuscular mechanism. The presence of acid chyme in contact with the duodenal mucous membrane stimulates this mechanism and inhibits pyloric relaxation. When this chyme becomes alkalinized by the alkaline juices in the duodenum, inhibition is removed and the pylorus relaxes and permits more chyme to escape from the stomach. Likewise the presence of acid chyme in the duodenum

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stimulates the secretion of bile and pancreatic juice.

On the stomach side the presence of acid chyme relaxes the pylorus and the presence of alkaline chyme inhibits relaxation or at least has a neutral effect on pyloric inhibition and relaxation. The alkalinization of the chyme in the stomach would also remove the stimulation of bile and pancreatic secretion.

According to this theory it is quite evident that any condition in or out of the stomach producing increased acidity would have a double effect on the pyloric sphincter. On the duodenal side to inhibit and on the gastric side to relax. Since inhibition is the stronger pyloric relaxation is inhibited and consequently there is a rise in intragastric tension probably adequate to produce true gastric pain. When increased gastric acidity is accompanied, as it usually is, by increased gastric motility and hypertonus, we have three factors tending to increase intragastric tension and thus gastric pain; viz., inhibition of pyloric relaxation, augmented peristalsis and hypertonus.

This theory would likewise explain the augmentation of gastric emptying in low acidity or achylia.

In case of pyloric obstruction due to organic disease in the stomach or duodenum, or pylorospasm, or inhibition of gastric emptying from disturbance of the natural order of gastro-intestinal forces, other factors modify gastric tone and motility, gastric emptying and sensibility.

It is rather generally agreed that pain in peptic ulcer in not due to the contact of the acid on the ulcer *per se*, although we are sure that there is an intimate relationship between the acid and pain in peptic ulcer, for neutralization of the acid by alkalies readily relieves the pain. The pain is probably due to gastric and duodenal tension exaggerated by increased acidity from any cause and more specially in ulcer because of the irritation of the vagus nerve fibers which are plentifully supplied in the submocosa and muscularis.

It has been proven that a small amount of free hydrochloric acid in the stomach is just as potent in activating the pepsin as high degree of acidity, also that while acid gastric juice may not be the cause of peptic ulcer, yet it is usually present in varying amounts in active ulcer and inhibits or prevents ulcer healing either by its corrosive action, or by its influence on pyloric inhibition, hypertonus and peristalsis, preventing gastric and duodenal rest so necessary to ulcer healing, or possibly both combined.

It would therefore appear that proficient treatment of gastric or duodenal ulcer would require complete neutralization of free gastric acidity. This is best accomplished by food, alkalies and gastric aspirations. Temporary starvation and rectal feeding are unnecessary because three or five days abstinence of food in the stomach is of little value in quieting spasm, peristalsis and tone, and the presence of non-neutralized acid in the fasting stomach may produce corrosive action, besides rhythmic systoles due to hunger interfere with physiologic gastric rest and irritate the ulcer.

The alkalies ordinarily used are sodium bicarbonate, calcium carbonate and heavy magnesium oxide, the magnesia being desirable to the point of bowel tolerance because of its high and continuing neutralizing power and its laxative properties, the sodium bicarbonate and calcium carbonate to complete the neutralization.

The alkalies are given frequently because of their fleeting action, with sufficient aspirations to make sure free acidity is controlled, therapeutic aspirations in case of pain with lavage if necessary, and routine aspirations to check control. It is desirable to use sufficient alkalies to neutralize the free acidity and not alkalinize the gastric contents. Combined acids do not interfere with ulcer healing, besides the normal habitat of gastric epithelium is an acid or at best a neutral medium. However I have failed to see any pernicious effects from over alkalinization, more often are failures in treatment attributable to under neutralization. Indeed the best medical treatment for ulcer hemorrhage is overalkalinization and physiological gastric rest. Little if any stimulation of acid cells result from alkalies, and mucoid secretion is reduced by removing the acid irritation of the ulcer. Besides complete

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neutralization lessens the tone and motility of the stomach, removes pyloric inhibition, and enables the stomach to empty more readily, more easily and completely with less irritation to the gastric or duodenal ulcer.

No doubt there is an added increment of motility from gastric aspiration or lavage, however the slight disturbance of relative gastric physiological rest is minor compared to the failure of under-neutralization with its consequent increased gastric tone and motility and local irritative and corrosive action.

Food combines free acid forming acid albumins and peptones which interfere but little with ulcer healing. Combined acids are readily neutralized by the alkaline juices of the duodenum which removes pyloric inhibition and enables the stomach and duodenum to empty more rapidly, with the least effort and irritation, and with consequent less acid secretion and more relative physiological rest.

Liquid carbohydrate mixtures (barley water, rice gruel, cream-of-wheat gruel, etc.), probably require the least gastric and duodenal digestion, excite the least acid secretion and pass relatively rapid through the stomach and duodenum; but they have no acid combining power, have but little food value, are not balanced in proteins, carbohydrates and fats to properly and sufficiently nourish ulcer patients who usually are anemic and poorly nourished.

In the early treatment equal parts of milk and cream give us the most ideal food from every standpoint, the protein clot being of minor signficance. The milk and cream should be given frequently and in small quantities in order that they may least disturb physiological rest, excite least acid secretion, best neutralize free acidity, and furnish adequate heat calories for the resting individual, being alternated with alkalies adequate to complete neutralization of any free acid. Later in the treatment other foods are added bearing in mind the principles stated.

In case of pyloric obstruction due to organic disease in the stomach, or duodenum, or in pylorospasm, or inhibition of gastric and duodenal emptying from interference in the natural order of gastro-intestinal forces, additional methods of treatment are indicated. The limits of this paper will not permit of their discussion.

In conclusion:

1. So many extragastric influences modify the secretory function of the stomach that the determination of acidity per cent is of very little value in the diagnosis of organic gastric disease or of gastric dysfunction.

2. The determination of gastric acidity aids in the explanation of gastric tone and motility, gastric emptying and gastric pain, and gives information necessary for efficient treatment of gastric and duodenal ulcer.

3. Essential factors in the medical treatment of gastric and duodenal ulcer from the standpoint of gastric secretion are:

a. Relative gastric physiological rest.

b. Neutralization of gastric acidity by food and alkalies.

c. Properly balanced food and adequate calories.

d. Additional control of motor, inhibitory and obstructive symptoms by other methods.

414-16 Hume-Mansur Building.

It has been said that we don't believe in disease prevention and all because we have called attention to that Section 10 of a certain Nevada statute. We do believe in disease prevention, but not when the laws, rules and regulations are all one-sided and do not cover ALL the people and are directed only toward the medical profession. That looks to us as though the personal liberty of a few people is being somewhat interfered with.

WHEN PROLONGED ACTION IS NEEDED—"Clinically," says Bryce, "I long ago proved the value of Cactina Pillets in many cases where there could be no question as to the efficacy of this agent in sustaining a failing heart. It is not spasmodic, but is a steady and reliable support when prolonged action is needed."

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Creole Medical Traditions.

The Practice of Medicine in the Mississippi Delta. Observations as to the Physical Effects of Living on Alluvial Soil upon the Different Races of Louisiana.

GEORGE H. TICHENOR, Jr., A.B., M.D.
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The people of Louisiana, like other sections of the country, are undergoing a change in many respects as a result of the World War. It is well in closing a period of life to look back and search for the lessons learned by experience. Louisiana has been under four flags, Spanish, French, American and the Confederate States; her experiences have been well told by historian and novelist, but her medical history lives only in tradition and the medical works of her sons.

Medical History. — Napoleon's surgeons, who emigrated to Louisiasa during the colonial days, left a lasting impression upon the profession. Dr. Ernest S. Lewis, Professor of Obstetrics, Tulane University, claims that the first hysterectomy was performed in Louisiana by one of Napoleon's surgeons. It was Dr. Charcot who explained what the heart was doing when at rest. The sayings and acts of Warren Stone, the surgeon, still are told today.

Races.—The visitor to this section is surprised to find only a remnant of the Creole (native French) population, and about three hundred and fifty thousand Italians scattered throughout the Gulf Coast country, from Mobile, Alabama, to the Texas state line. Jews, Italians and negroes form the bulk of the population. There are still a few customs which remain to remind us of other days. It is with the view of preserving the traditions of medical practice that inspired this article, also my personal experience of about twenty years' practice in this section, so that others may profit thereby.

Climate.—The medical literature is very extensive regarding the benefits of various climates, following the rule, the less we know the more we write or talk on a subject.

Dampness.—It is generally admitted that man adapts himself most readily to the extremes of climate. In this section he gets the extremes, often during winter within twelve hours; it may be spring weather during the day and winter by night, but the dampness remains to be felt, more or less, at all times.

The reader must not forget that the inhabitants live behind levees to protect them from floods from the Mississippi River. The effect of dampness must be ever considered in the treatment of disease in this section and its result, acidosis, together with the glandular function of the various races and half-castes, mullatoes, etc.

The natives become somewhat acclimated, but the newcomer must be on his guard, if he comes from colder climates. The influence of climate, although well discussed for over two thousand years, has not led to any considerable effort to avoid or prevent effects, which the public generally accept as inevitable. The effects of temperature in producing disease are often confounded with the effects of change of temperature.

Customs and Coffee Drinking.—From early colonial days, either clinical observation or natural intuition formed the morning cup of black coffee (*coffee au lait*) habit among the Creoles, and when questioned why they drunk it so strong, they will tell you so as to keep off malaria and heartburn (results of weak coffee). This custom may shock the coffee substitute faddist, or the manufacturer, but is really in accord with modern scientific views. Let us see. We class caffein, the alkaloid of the coffee bean, in the same catagory with strychnia and other alkaloidal tonics.

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The adrenal glands are responsible, when stimulated by coffee, in bringing about certain circulatory and detoxication reactions, which are necessary to maintain health and to eliminate from the organism the poisons which irritated it.

The only serious detriment I have ever noticed from this custom was the taking away the appetite for breakfast and detrimental effects to individuals who have adrenal insufficiency; and that it antagonizes the effectiveness of adrenal support, for reasons which are quite clear. Coffee stimulates the vital centers and the brain cortex, favors deeper respiratory movements, inceases heart beat and uinary secretion. This warm, soothing, stimulating drink is especially applicable to this climate, where the secretions are sluggish and glandular affections are common. (Superintendent of New Orleans Public School, in his 1910-11 report, pp. 85-142, reported as defective by grammar and primary grade teachers 2,339 pupils, and 85 kindergarten pupils. Of total examined, 1,303, those with enlarged glands among the boys numbered 454, among girls 323; hypertrophied tonsils, boys 161, among girls 151.) Of course, like everythings else, there are those who overdo the matter. The continued stimulation, excessively, of the adrenal glands by all sorts of stimuli, both of the nature already mentioned and those due to alcoholic and emotional causes, naturally wears out these glands.

Mode of Living—Catarrh of Bile-Ducts and Intestines—Exposure to cold and dampless, the body warm and perspiring, will set up a catarrhal process in the bile-ducts and intestines, especially in those having special susceptibility, which belongs to certain bodily types. The exhalations from freshly upturned soil in the alluvial section exert a causative influence; especially is this the case of hunters in swamps. During overflows, when the water is four or five feet above ground, this is not noticeable until the water has fallen and the ground begins to dry. At the mouth of the Mississippi, the few inhabitants there seem to be healthy and not affected as much as dwellers in the parishes (counties) above the delta; the water of the river is always to a considerable depth, from 10 to 15 feet, above ground, the inhabitants live along the river on elevated houses resting on poles, *a la Chinese.* However, I have known of a case of eclampsia, induced in a delicate woman, from an evening walk in New Orleans during the rainy season.

Entero Colitis; Cholera Infantum; Hepatic Abscess—Climate, change of, in entero colitis and cholera infantum, and in the production of hepatic abscess, exercises an unquestionable influence, that we all know. The modern system of drainage in New Orleans and better trainage in some of the parishes has lessened the number of cases of hepatic abscess in the New Orleans Charity Hospital. The valley of the Mississipi and its tributaries comprise a vast region where conditions are favorable for the production of hepatitis. The mean annual temperature, the malarial foci, the social and personal habits of the people (especially males) combine to favor the production of hepatic abscess. Let me say, by way of diversion, my observation of the natives of Central and South America, the native population and females not affected, there must be other influences to the action of which high temperature contributes. The rich and highly seasoned food in which Creoles indulge, and wines, are reasons for the occurrence of this malady in such excessive proportions amongst them; this refers more especially to the older generation. Some of our old authorities have made very accurate observations. Lombard says, these warm climates visited by dysentery are almost exclusively affected by this disease. Hirsch, while recognizing the influence of climate, shows that the natives are not affected to the same extent as are Europeans. Both writers maintain that hepatic abscess does not occur frequently in the corresponding parallels of latitude in the United States; which is true of the Atlantic border, but is not correct for the interior country, the vast valley of the Mississippi and its tributaries.

Lafourche Section—The Lafourche Section along the Bayou, which has been divorced from the Mississippi River and

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lined with levees (embankments) would probably be more unhealthy if it were not for the fact that it connects with the salt water of the Gulf of Mexico and is therefore not a stagnant body of water. The inhabitants live, for the most part, behind the levees, with swamps in the rear, and only a public road between residences and the levee. They are not troubled with "seepage water," like along the banks of the lower Mississippi River, as the Bayou does not rise to that height. This "seepage water" ushers in the "chills and fever" season. At the mouth of the Mississippi River they are not troubled in this respect, and salt water rises from the Gulf of Mexico, sometimes, even three feet above the surface of the river at New Orleans.

The highest temperature attained in New Orleans was 98°, the lowest around 53°, but the weather is very changeable during winter months. The hottest summers in the city are nothing compared to those of other sections; owing to our proximity to the Gulf, we have cool night breezes in summer. This statement holds good for the entire Gulf section, including the Lafourche section.

About forty miles southwest of New Orleans is a portion of Lafourche Parish known as Raceland prairie, which a few years ago was a watery waste, growing nothing but cattails and other marsh grasses; whereas today 10,000 acres are under intensive cultivation, inhabited by natives and northerners. It is quite natural that many mistakes may be made in reclamation operations; there is no data at hand to guide those engaged in the work, and practically no knowledge of the requirements. The size of the levees to prevent outside overflow, the depth and width of reservoir canals, the size and number of field ditches, and the capacity and type of pumping plants, all had to be learned by experience, as the natives never worried themselves much about these things in days gone by. Delta Farms, La., has the same conditions to contend with.

It is in this section of Louisiana where the native Creoles are accustomed to eat their game, fowls and meats after they have left them hang out-of-doors until the flesh is ready to drop from the string it is tied with. It is called *fais en dais* (rotten). Also, the natives are accustomed to eat *Gumbo Herbs* (a combination of all the fresh vegetable greens boiled for the *"Stomach and Constipe"* (constipation), probably a tradition handed down from the early Creole doctors and kept up by the modern physician for its mechanical, three to four time for digestion and use where low grade foods are necessary.

The *"fais en dais"* preparation of meats, fortunately, is losing its popularity with the younger generation. Unfortunately, statistics in this section are of little value and personal experience is the only criterion. We know full well the results of absorption of putrid material by the portal radicals in dysentery in producing abscesses in the liver; also ulcers of the stomach; malaria; blows and injuries; heat; associated with or following pyaemic abscess; therefore we should not marvel at the number of cases of abscess of the liver among these people.

My attention was called by one of my patrons to a negro employee who ate his meat in a putrid condition, without any seeming discomfort, as a living contradiction to scientific rules and regulations and I was asked to explain the "why and wherefore." He had been accustomed to doing this for a number of years. "Well," here was my reply, "In the first place, he had become somewhat attenuated to the poison. His adrenals had been irritated to the extent of bringing about a large degree detoxicating reactions, which are necessary to maintain a certain degree of health and to eliminate from the organism the toxins which irritated it, in a large measure allowing the system to become attenuated, as it were, to the remaining poisons." The endocrine glands not only serve the purpose of immediate regulation, but more fundamentally control, in a large measure, the autogeny of those human traits which, for the most part, are used for differentiating the several races. The Caucasion manifests a greater predominance of the pituitary than the Negro or Mongolian. We have in the Negro and Mon-

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golian a manifestation of abeyance in the action of the interstitial glands which toxins irritate to more activity and in this manner, to a certain extent, produce chemical changes in putrefaction which neutralizes, to a certain extent, its effects.

Tumors and Deformity—Among the half-castes, the mullatoes (females) are especially prone to fibroid and cystic tumors. We know the interstitial glands, which effect the sexual differentiation, appear more aetive in the Caucasian than in either the Mongol or Negro races, and, as stated, we seem to have a manifestation of abeyance in the action of the interstitial glands in the case of the Negro.

The full blooded Negro (male) is occasionally affected with keloid, but I have never noticed these tumors among the females. The male Mullatoes, I have never seen with tumors with which the female is very frequently affected. As the Mullatoes are particularly prone to prostitution and afflicted with venereal diseases, I attribute gonorrheal infection as a powerful excitant in the females, especially when we consider the mechanical arrangements and obstructions in the folds and adnexia in the female pelvic organs. Again, you will frequently find her with fibroid or cystic tumor and a well defined case of gonorrhea, with stasis in the pelvic glands. She generally terms the buboes "*waxing kurnels.*" The female Mullatoes are especially prone to deformities in the pelvis and its organs. I have known cases in Central and South America where the offspring showed different distinctive types of racial reversion; one would be markedly Spanish in type and color, another Negro, and another Indian, where there was not a suspicion of any disloyalty attributable to the female in her matrimonial relations. However, chastity is almost an unknown attribute of the half-caste of any race. The vast majority of the inhabitants of the former "restricted district" in New Orleans were of this class. This is explained by the fact that maldevelopment or arrested development, and the more nearly the individual approximates the type of fetal development which exists prior to the commencement of sexual differentiation, the more marked is the abberance of sexuality.

Mosquito Tradition in Regard to Malaria and Yellow Fever—In some isolated sections of some of the parishes, especially the Lafourche, where written French is unknown, it is not surprising that three distinct *patois* are spoken within the length of about ninety miles; therefore we can expect tradition to be somewhat handed down in true form. While serving the state during the last fever epidemic in Louisiana, some of the natives (half-caste, Indian mixture) told me that they hung meat at the front door so as to attract flies and mosquitoes, in order to keep them from annoying them, and to keep off malaria and yellow fever. The fact that flies and mosquitoes were noted to have something to do with diseases is mentioned by William Darby, the first American state engineer, and first American historian of Louisiana, who states that the natives considered an epidemic of malaria or yellow fever was imminent when seen in large numbers (mosquitoes).

Stature—Skin Discoloration—As stature is a racial characteristic, it is well to consider it in regard to the small stature of the native, especially the "Cadjeans" (Arcadian descendents along the Teehe, Evangeline County), and the civilians who are both small in stature and have the "olive complexion." The pituitary regulates stature and total in growth. The adrenals seem to perform the function of clearing away pigment from the skin. The thyroid influences, particularly, the development of the bones of the base of the skull and nose, which development, when retarded, gives a typical Mongolian aspect, while a defective thyroid in adult life gives rise to a disorder, myxodema, yellowish tint of the skin. Therefore, in diagnosis cases, the skin discoloration must be carefully considered. The dwellers on the "natuer land" (sand bar formation in front of the levees), timber workers in the swamps, have a dark yellowish tan discoloration, especially noticeable on the forehead, without indicating any immediate de-

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rangement of the glands, but merely bile stain, browned by the sun to the extent of forming a scarf with a distinct margin at the hat brim portion of the forehead. The rest of the body protected from the sun has a uniform dark yellowish color of lighter tan.

"Trateurs"—Among the early settlers and until recent years, the "trateurs" (a patois for female practitioners of medicine, without license, also midwife) were held with great esteem (of course the law does not permit them to practice now). There is no doubt they handed down many simple remedies, such as sassafras root and the various herbs, usually compounded for "root beer" nowadays. They also did a lot of harm by spreading the knowledge of cotton root as an abortifacient. "Soot tea" from the chimney seems to be purely a negro illusion. The negro is not creative and is imitative, therefore there is nothing acquired from him.

The automobile, aeroplane and good roads are rapidly modernizing even what formerly were isolated sections, and putting, as it were, the finishing touches to what the draft did in breaking down the barriers of isolation. The Creoles will soon be a people of the past; therefore I hope this meagre shadow of the past may be of some service to those who come after me.

4007 Magnolia Street.

Specialism Gone to Seed.

HOWARD CRUTCHER, M.D.,
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During my college days a discriminating friend presented to me a copy of the most charming book in my collection, "The Story of My Life," by J. Marion Sims. The author, if not the first, was at least the most renowed of all American specialists and when death claimed him, in the prime of his noble and laborious activities, it was universally understood that, like Caesar, he required no obituaries. He was a great specialist for the reason that he was a great man. Ephriam McDowell and Samuel David Gross are the other members of the grand triumvirate of American specialists.

Many years ago at the old Cincinatti Hospital, then located at the corner of Twelfth Street and Central Avenue, I attended a clinic conducted by "Daddy" Murphy, one of the great teachers of a generation ago. Six or more cases of pneumonia were presented. I was charmed with boyish delight as the old clinician brought out the various fine points of pneumonia pathology. In the plentitude of my boundless ignorance, I decided on the instant to become a pneumonia specialist and confided the information to my roommate, a man of mature years and ripened judgment, who gently inquired, "And I suppose you have made a careful study of the anatomy of the chest?"

Anatomy? What use had a pneumonia specialist for any knowledge of anatomy? As a matter of fact, I had taken a deep dislike to "Gray," when I overheard an old-time practitioner say that he could "cure any case of pneumonia that ever came down the road" with broken doses of sal ammoniac. Anatomy be hanged! The next morning I went to Grove's drug store, at the corner of Seventh and Mound Streets, and bought a dime's worth of the precious sal ammoniac, and straightway there was another specialist on earth; a pneumonia specialist, if you please.

The term over, I returned to my home and resumed my studies in the office of an old-time practitioner with whom I used to ride while he was making his daily rounds among his patients. One afternoon the old gentleman informed me that he was on his way to visit a pneumonia patient. Here was my opportunity.

"You know how to cure him," I said,

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with some air of authority. "No, I do not; no medicine does any positive good, and all we can do is to support the strength of the patient while he is throwing off the disease."

That remark shattered at a single blow all my ambition to become a pneumonia specialist. It is unnecessary to say that I returned home with a heavy heart and resumed my speaking acquaintance with "Gray." For days and nights I worried over the plurae, the infernal mediastinum, the valves of the heart and the branches of the thoracic aorta.

Before taking leave of pneumonia, after a service of forty years as student, practitioner, teacher and author, I wish here and now to record my belief that much may be done for the pneumonia patient by a sensible practitioner who treats patients instead of diseases. Pneumonia, like typhoid, is blood poisoning. Our first duty is to eliminate the poison and then support the strength of the patient. But how? With food. There is no other way, and there never will be any other way.

Specialism is not only desirable, but necessary to the highest development of the healing art. I am an unfaltering believer in it. But I here and now, once and for all, enter an energetic protest against half-baked or par-boiled specialism, a bastard type of the real article, and the one thing that, in my humble judgment, is doing much to undermine the confidence of the public in the medical profession.

A rich little city lying within the boundaries of the great State of..... has ten thousand inhabitants and about forty doctors. With two or three honorable exceptions, all of them are "eye specialists," and not one of them could, by any possibility, give the gross anatomy of the orbit and its contents. The town is full of hernia, goiter, and stricture of the urethra, but, strange to say, there is no "specialist" thereabout who ventures to attack any of those conditions.

One day, while performing the Bassini operation for hernia in a county seat town, I asked in a serious vein, "Where does the deep epigastric enter the peritoneal cavity?" The replies were illuminating in one way, to say the least. At another time a noisy disciple of the Kirksville cult, who was always much given to displaying his anatomical wisdom in the presence of gaping laymen, began pounding the cervical vertebrae for some supposed lesion of the trapezius muscle. He was terribly bruised in his finer feelings when I reminded him that the trapezius was supplied by the spinal accessory, a cranial and not a spinal nerve.

In a prosperous little city, not a thousand miles from Lake Michigan, resides a rectal specialist. One day I drew him quite unconsciously into a discussion of the anatomy of the perineum, which I supposed all rectal specialists knew by heart. My amusement reached the breaking point when he declared the superior hemorrhoidal to be a branch of the hypogastric, whatever that may mean.

The simple truth is, there are specialists, practitioners who really know something of everything and everything of something, and, on the other hand, *specialettes*, who know little of anything and nothing of most things. There are surgeons, men deeply versed in the science and thoroughly familiar with the art of surgery, and a swarm of *surgeonettes*, who might, by some good fortune, amputate a pig's tail and save most of the—tail.

Specialists may, like poets, be born, but it is certain that they must grow, like Topsy. Science plays no favorites. No man was ever born with a working knowledge of the abdominal wall, to say nothing of the contents of the cavity beneath it. Skill is the product of deep thought, incessant application, and untiring work, to which must be added that indispensable element, practical experience, without which no man is honestly entitled to the name of specialist.

Now we wonder how soon the Christian scientists, New Thought adherents, hypnotists, spiritualists and drugless healers of every sort, will begin the operation of health resorts in Nevada. They will be wholly safe in so doing, for Section 10 is now active and working you know.

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Examination of the Anus and Rectum together with the Interpretation of the Findings.

CHARLES J. DRUECK, M.D.,
Chicago. Illinois.
Professor of Rectal Diseases, Post Graduate Medical School and Hospital.

It is a deplorable fact that many general practitioners overlook details and make but a cursory examination of patients suffering from rectal disorders. The practitioner who wishes to retain the confidence of his patient must examine the rectum as carefully as he would any other part of the body, because the time is past when patients will be satisfied with a placebo. All modern textbooks on surgery find it necessary to incorporate a chapter on diseases of the anus and rectum.

Before we can diagnose or intelligently treat disturbances within the pelvis, we must not only inspect and palpate the exterior surface but we must also explore its hollow cavities. A thorough examination of the rectum not merely considers the coats of the last few inches of the ailmentary tract, but the digital exploration determines the condition of all the organs and structures within the true pelvis. The rectal examination confirms the vaginal findings in the female pelvis, and in the male pelvis it is the only method of actually feeling the parts in question. The importance given today to toxemias, especially those due to intestinal stasis, requires an examination of the feces.

We cannot go into detail here, but doubtless every physician has patients where the weight of what has been said will be appreciated, and I urge the reader never to forget, when exploring these parts, that all of the pelvic organs are bound together by one grand nerve plexus, and nowhere else in the body are there so many nerve impulses. Frequently a robust man is invalided by direct or reflex disturbances when very little pathological change can be found.

Rectal Disease Progressive. Rectal diseases are always progressive and an early diagnosis may mean a slight operation with perhaps no absence from business, while later the condition may be so aggravated as to confine the patient to his bed for weeks or months. Almost every patient who realizes that he has rectal trouble informs his physician that he is suffering from piles, and sometimes the doctor accepts the patient's diagnosis without examining the parts.

The symptoms of rectal abnormalities sometimes draw the patient's attention at once to this particular organ, but in other instances, because of intimate nervous connection between the rectum and other pelvic and abdominal organs, the symptoms may be so obscure or the onset so insidious that reflex disturbance elsewhere is first complained of and the patient is treated for disease of some other part. While the symptoms may refer in general to this part of the body, they by no means indicate specific disease. The odor of cancer or the pain of fissure are characteristic, but they do not in any way exclude the presence of other associated pathology.

Disease of the colon, sigmoid and rectum usually produce reflexly other digestive disturbances such as flatulence, loss of appetite and constipation which may be protracted or alternate with diarrhea.

General Physical Examination. The examination of any case, medical or surgical, is incomplete unless we go into the family and personal history. Often it is tedious and much time is wasted on irrelevent matter; yet, frequently it emphasizes idiosyncrasies. The preliminary interrogation of the patient should be systematic, so as to cover carefully and completely the whole case without repeating. It is a good plan to let the patient tell his own story, and then the physician to bring out the patient's age, physical condition and nervous temperament, the duration of the disease and the progress of the symptoms, since their

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appreciations, together with whatever effect they have on the general health, often determines how much of the complaint is real and how much is imaginary.

Continued anal or rectal disease tends to make our patient melancholy and as they have used domestic remedies without relief they are forlorn and discouraged. This is particulary so of constipation, fissure and hemorrhoids. Irritability of temper soon results from the sleeplessness and indigestion incident to pruritis ani.

The occupation or mode of life of the patient may not have been a factor in causing the disease; nevertheless it may be important in mapping out his future style of living as to habits, environment and diet. Does he use enemas frequently or take his pipe and daily paper to the water closet with him? If a female and married, how many children or miscarriages has she had and was there any rupture of the perineum? Is there any uterine or ovarian pain, any vaginal discharge, prolapse of the uterus or difficulty in urinating? If a virgin, inquire as to the menstruation, whether regular, painful, scant or profuse. Severe cases of angulation of the intestines resulting in colitis and constipation are the result of inflammation of other pelvic organs. In the male abscess of the prostate may cause pelvic-rectal abscess, or an enlarged prostate may cause constipation. Certain digestive disturbances cause diarrhea or constipation, i. e., excess of fatty acids in the stool due to hepatic insufficiency will cause diarrhea, or lack of pancreatic juice may be the cause.

Diarrhea is a frequent symptom of proctitis, or colitis and may be limited to one or more liquid stools perhaps occurring only in the morning. In the ulcerative colitis there may be almost constant evacuations.

Diarrhea with fever indicates typhoid fever, malaria or colitis. Diarrhea occasionally may be nervous as a result of shock, sudden chilling of the body, neurasthenia or hysteria. Fat diarrhea (the presence of undigested fat in the stool indicates lack of fat digesting power of the bowel).

Incontinence of feces must be thought of when repeated diarrhea is commented upon by the patient. It is too serious a symptom and may be an expression of injury to the lumbar cord or transverse myelitis. It also occurs transiently in the prostration of severe acute or chronic diseases and in dynamic nervous condition from any cause. Incontinence of feces associated with incontinence of urine is a symptom of Jacksonian epilepsy.

Chronic appendicitis may produce obstinate constipation. I have also had several cases where obstipation and other gastric troubles were wholly due to chronic tonsilitis and were promptly relieved by the removal of the diseased organs. It must also be remembered that even tho the troublesome symptoms refer to the rectum, cardiac insufficiency, digestive disturbances, cirrhosis of the liver or arterial degeneration, may contraindicate operative procedure. Any evidence of anemia, tuberculosis or syphilis must be taken into consideration; and whether the patient has had gonorrhea or has a urethral stricture. Rectal tenesmus may occur when a stone is moving in the lower portion of the ureter and occasionally the stone may be palpated per rectum.

30 North Michigan Avenue.

PROMOTES NUTRITION—In convalescenc from fever, enteric disorders and run-down conditions generally, the action of Seng will hasten absorption and encourage nutrition. The physician is convinced of this if he uses the genuine preparation and not some worthless substitute.

Burglars, yeggs, porch climbers, moll grabbers, peter men, and all ye crooks, just add "treatment by prayer," or "mental or spiritual means" to your acts and call it your religion and you need worry little, for Section 10 will protect you.

We are wondering if that Section 10 was written by some reformer. If so it looks like reform "in reverse" to us.

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Western Medical Times

PUBLISHED MONTHLY BY
THE MEDICAL TIMES PUBLISHING CO.

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THE MEDICAL TIMES PUBLISHING CO.

1839 Champa St., Denver, Colo. Business Office Telephone Main 5035.

Address all Articles, Personals and other items of interest, and Books for Review to Geo. L. Servoss, M.D., Editor, P. O. Box 517, Reno, Nevada.

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PHILOSOPHY—PRAGMATISM.

Pragmatism, or the pragmatical method, is a method of settling disputes that otherwise might be interminable. The pragmatical method is a trying to interpret each notion by tracing the respective practical consequences of that notion. If it makes no practical difference to anyone whether this notion or that notion be true, then both alternatives mean practically the same result and all dispute is idle. Whenever a dispute is serious, then we should show some practical difference that must flow from one particular side believing right, rather than the other. The attainment of clear thought demands that we consider what conceivable effect of a practical kind the object may involve, or what sensations we are to expect from it and for what reactions we must prepare. Conception of effects, whether it is immediate or remote, is for us the whole of our conception of the object, so far as conception has significance.

All realities influence our practice and that influence is the meaning of those practices for us. Put a question in this way, "In what respect would the world be different if this alternative or if that alternative were true; if nothing would be different then the alternative has no sense." Chemists have long wrangled over the inner constituents of certain bodies called tautomeric, or having the power of reacting in two or more different ways, as if it were two or more different substances. Their properties seemed consistent with the notion that an unstable hydrogen atom oscillates inside of them, or that they are unstable mixtures of two bodies. Controversy raged, but nothing was decided. This controversy never would have begun if the combatants had but asked themselves what particular experimental fact could have been changed by one or the other view being correct. It would have appeared that no difference of fact could have possibly ensued, therefore the quarrel was unreal as if raised by the theorists of primitive times about the raising of bread by yeast, and one party should have invoked a Brownie, while the other insisted on an elf as the true cause of the phenomenon.

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The sickliest notion of physics, even if a student gets it, is that it is the science of masses, molecules and the ether, and the healthiest notion, even if the student does not wholly get it, is that physics is the science of the ways of taking whole bodies and pushing them.

It is astonishing how many learned disputes collapse into insignificance the moment you submit them to the test of tracing a consequence, for there can be no difference anywhere that does not make a difference elsewhere. Your whole philosophy should have a function, it should find out what definite difference it will make to you, at definite instances of your life, if this world-formula or that world-formula be the true one. A pragmatist turns his back resolutely, and once for all, upon a whole lot of inveterate habits that are dead to professional philosophers. He turns toward adequacy, toward facts, toward action and toward power. That means the open air and the possibilities of nature as against dogma, artificiality, and the pettiness of finality in truth. It is a method by which science and metaphysics would work hand in hand. Theories become instruments, in answer to enigmas, on which we can rest. We move forward and on occasion we make nature over again by their aid. It is the attitude of looking away from fixed things, principles, categories, supposed necessities, etc., and it is looking forward to last things, fruits, consequences and facts. It is the theory of truth.

When the fixed mathematical, logical and natural uniformites, the fixed laws, were discovered, men were so carried away by the clean, beautiful and simplification that resulted, that they believed themselves to be the decipherers of the eternal thoughts of the Almighty and some men claimed to be authentic.

However, as the sciences developed further, the notion came clearer that most, perhaps all, of our laws are only approximations and the laws themselves have grown so numerous that there is no counting them. So many rival formulas are proposed in all branches so that investigators have got the notion that no theory is absolute transcription of reality, but that any theory may be useful from some point of view. Their great use is to summarize old facts and to lead the new ones. They are only a man made language, a sort of shorthand, in which to write the report of nature and as such they tolerate much choice of expression and many dialects.

Our ideas mean work and the power to work. Those ideas are but part of our experience, and those parts become true only just so far as they help us to get into satisfactory relation with other parts of our experience, to summarize them and to get about among them by the short cuts of our conception, rather than to follow the interminable succession of particular formula.

In the establishment of science the successful stroke was to take some simple process that was actually observable in operation, such as denudation by weather, or variation from parental type, or change of dialect by incorporation of new words, or other, and then to generalize it, to make it apply to all times and to produce great results by summating its effects through all the ages. Suppose an individual has a stock of old opinions already, but he meets a new experience that puts them all to a strain, someone contradicts them, or he may himself discover that they contradict each other, or he learns of facts that are incompatible, or he has desires that they cease to satisfy, the result is trouble to his inner mind, to which he had been, until then, a stranger. He modifies his previous mass of opinions, he saves as much of it as he can, and changes this opinion and that opinion until, at last, some new idea comes up that he can graft on his ancient stock with a minimum disturbance of the latter. This new idea is adopted as the true one. The most violent revolutions in an individual's belief leave most of his old order standing. A new truth is always a go-between or a smoother-over of traditions. It marries old opinion to new fact with a minimum of jolt and a maximum of continuity. To a certain degree, therefore, everything here is plastic. The influence of oldest truths is absolute control. Loyalty to them is the fixed principle, and it may be the only principle. When phenomena appear and prove so involved that they make for a serious re-

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arrangement of our preconception the easiest way to meet them is to ignore them, or else to abuse those who bear witness for them.

The simplest case of new truth is mere addition. Day follows day and its contents are simply added, the new contents are not true, they simply come and are. Truth is what we say about them and when we say that they have come, truth is satisfied by that plain formula. But one day radium came as part of the day's content. It seemed, for a moment, to contradict our ideas of the whole order of nature and of its conservation of energy. The mere sight of radium paying a way hear out of its own pockets seemed to violate that conservation. What were we to think? If the radiations were but an escape of unsuspected potential energy, pre-existent inside of the atoms, the principle of conservation would be saved. Helium was discovered and opened a way to this belief. This view is generally held to be true, it does extend our old ideas of energy, but it causes a minimum alteration in their nature. A new opinion counts as true in proportion as it gratifies our desire to assimilate the novel in experience to the beliefs that are already in stock. The true must both lean on old truth and must grasp new fact at the same time.

The religion of today is a fashion of idealism. It is far too intellectualistic. Old fashioned theism was bad enough, but it kept some touch with the realities. Far be it from me to deny the majesty of the modern conception or to deny its capacity to give religious comfort to a most respectable class of minds. But from the human point of view it suffers from remoteness and abstractness. It is dapper, it is noble in that bad sense in which to be noble is to be inapt and useless for humble service. This is a world of sweat, blood and dirt, and when a view of things is "noble" that ought to count as a presumption against its truth and as its disqualification. The Prince of Darkness may be a gentleman, as we are told he is, but whatever the God of earth and heaven is, he can be no gentleman. He must be a worker and his most menial services are needed in the dust of our human trials more than any dignity is needed in the empyrean. If theological ideas prove to have a value for life they will be true in the sense of being good for so much. For how much more they are true will depend entirely on their relations to the other truth, whose claims also have to be accepted. An idea is true so long as we believe it profitable to our lives, it is good for us as much as it profits. The truth is whatever proves to be good in the way of belief and proves to be good for definite assignable reasons. If there be any life that is really better, that we should lead, and if there be any idea which would help us to lead that life, then it is better for us to believe in that idea, unless that idea, and belief in it, clashed with other greater vital benefits. In other words, the greatest enemy of any one of our truths may be the rest of our truths.

Pragmatism unstiffffens our theories. She widens the field of search for God. Rationalism sticks to logic and the empyrean. Empiricism sticks to the external senses, but pragmatism is willing to take anything, to follow either logic or the senses, or to count the humblest or the most personal experience. She will count mystical experiences if they have any practical consequences. She will consider a God who lives in the very dirt of the private facts that we know, if that should seem the most likely place to find him. The only test is what works best in the way of leading us, what fits every part of our life best, what combines with the demands of our experience, what omits nothing. If theological ideas do this, if any notion of God in particular should prove to be about to do it, pragmatism does not deny that God's existence. No notion that was shown to be successful could possibly be denied by pragmatism, nor could any such notion be treated as not true. Pragmatism agrees with every concrete reality, her markets are various and flexible, her resources are rich and endless and her conclusions are as free as are those of Mother Nature.

Oh you wonderful maker of laws! You do yourself proud when you write in those like Section 10, for you undo all the good work of the present, as well as of all the years gone by.

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BOOK REVIEWS

NOTICE:—It will be the pleasure of the WESTERN MEDICAL TIMES to furnish any book, reviewed in this department, to its readers at the publisher's price, delivery prepaid. If any single order covers two books, the purchaser will be given in addition, a year's subscription to the WESTERN MEDICAL TIMES, providing the publisher's price for the two is $5. or more. If you desire any one of the books priced at $1., you may have it absolutely free if you will send us $2. to cover a subscription of one year for the TIMES. Address your orders to the Advertising Manager, 138 North Center Street, Reno Nevada.

THE SURGICAL CLINICS OF NORTH AMERICA (issued serially, one number every other month), Volume 1, Number 2. By New York Surgeons. 326 pages, with 116 illustrations. Per Clinic year (February, 1921, to December, 1921). Paper, $12.00 net; Cloth, $16.00 net. Philadelphia and London: W. B. Saunders Company.

There are many things in this number of the Clinics which will be found of value in everyday practice, for many things, not out of the ordinary and possibly reported that the reporter might add to his reputation, enter into it. Willy Meyer gives us an interesting article upon after-treatment of surgical patients and this, of itself, makes the book of more than passing value. Hartwell reports a case of acute empyema in which in connection with the treatment, are injected some practical points of more than passing value. In consideration of the surgery of the biliary tract, Whipple reports several conditions and the treatment thereof. Again does Albee demonstrate the superiority of the bone graft in his reports of cases of plastic surgery of the hip and femur. St. John presents numerous cases of empyema in which the use of the Carrel-Dakin treatment is emphasized.

These are but a few of the very interesting things in the New York number of the Clinics and many of them will be as interesting to the internist as to the surgeon, for they will lead to either a better diagnosis or better treatment, or both.

As we have said before, this bi-monthly publication is one which keeps us down to date, even though it be impossible for us to take post-graduate work away from home, for each author goes so thoroughly into his reports that it is not a difficult matter for the reader to visualize that which is presented.

NUTRITION AND CLINICAL DIETETICS, By Herbert S. Carter, M.A., M.D., Assistant Professor of Medicine, Columbia University: Paul E. Howe, M.A., Ph.D., Associate in Animal Pathology, Rockefeller Institute for Medical Research; and Howard H. Mason, A.B., M.D., Instructor in Diseases of Children, Columbia University. 703 pages. Cloth, price $7.50 net. Philadelphia and New York: Lea & Febiger, 1921. Second Edition, Thoroughly Revised.

In this edition of the book it has been brought down to date and the later findings have been introduced. Much of the matter has been rewritten, as for instance the chapter on vitamines, and the newer ideas regarding energy, metabolism and digestion have been injected into the work. New chapters on metabolism in pregnancy, together with feeding of children over two years old have been added. The literature of the past three years has been gone over very thoroughly and the points therein, proved worthy, have been included in this edition.

It must not be construed that this is a diet list, *per se*, for, as its title says, it has much to do with the discussion of nutrition and the "why" of the use of foodstuffs, both in sickness and health is entered into very thoroughly. Comprehensive attention is given to the subject of digestion and numerous points, not apparently common to other authors, are brought forward in this connection and more or less emphasis given to them.

In this application of diet in disease the authors go into detail and again give us the "why" of the subject. All in all this is a valuable addition to the literature on this special subject and it will be found of value to both student and practitioner alike.

Not only are foodstuffs discussed, but in connection with specific diseases we find more or less attention paid to the pathology and where the abnormal may be corrected, or where a proper diet may aid in the correction thereof.

THE SURGICAL CLINICS OF NORTH AMERICA (Issued Serially, one number every other month) Volume I Number 3. By Boston Surgeons. 354 pages, with 159 illustrations. Per clinic year (February 1921 to December 1921). Paper $12.00 net; cloth $16.00 net. Philadelphia and London: W. B. Saunders Company.

A thing which will strike the reader very forcibly, when he reads this Boston Number of the Clinics, is the fact that the various contributors have reported everyday things and have, to a man, avoided those things which rarely occur and which the general practitioner may not see during the practice of a life-time. There seems to have been an effort made to give the reader a book which will be real assistance to him, in the way of clinics which are really of an instructive nature, and seemingly not offered with the possible idea that they will bring about case references to the reporters. From cover to cover there is not one of the out-of-ordinary things, which we so very frequently see brought to light in publications of this sort.

Every reporter goes into detail relative to every point connected with the cases in hand and in several instances, in those cases which are difficult of diagnosis, the various points which lead up to greater ease of differentia-

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tion are very clearly brought forward. Much is offered in the way of instructions as to operative technic and the illustrations, all of which are original to the book, add much to the elucidation of the text.

This number of the Clinics will not only be of value to the surgical specialist, but will be of like worth to every man in medicine, aside possibly from those treating diseases of the eye, ear, nose and throat. In every report an effort has been made to give all in formation in clear and concise manner, and with sufficient detail.

THE INTERNATIONAL MEDICAL ANNUAL, A Year Book of Treatment and Practitioner's Index. Edited by Carey F. Combs, M.D., F.R.C.P., (Medicine), and A. Rendle Short, M.D., B.S., F.R.C.S., (Surgery). 564 pages, illustrated with numerous cuts in text and several plates, some colored. Cloth, price $6.00 net. 1921, Thirty-ninth Year. New York: William Wood and Company, 1921.

The International is one of the Annuals to which we always look forward, for we know that it is not only going to afford us pleasant and profitable reading, but that it will bring us down to date and, in addition, will, as a rule, give us an epitome of the worth while current medical literature of the twelve months gone by.

In the preparation of this Year Book, the publishers always take great care in chosing the contributors and as all the matter offered is carefully edited prior to publication, we are always sure that the book will be conservative and that we will not be offered things of a pyrotechnic nature—the things that one so rarely encounters, but which aid one in getting into the lime-light.

The fact that the material is drawn from the whole world and not from any isolated medical center adds greatly to the value of the book, for we get the ideas of all men instead of a few, and so our knowledge is broadened.

The arrangement of this edition of the Anual is much along the same lines as those which have gone before. Attention is given to therapeutics, treatment, both medical and surgical, and the technic of application of various methods of both is given in sufficient detail to be of value.

The illustrations are particularly good and the colored plates are really works of art. The busy man will find the Annual of vast benefit when he is desirous of gaining knowledge of the newer things or ideas of both medical and surgical natures. The arrangement admits a quick reference.

THE ASSESSMENT OF PHYSICAL FITNESS, By Correlation of Vital Capacity and Certain Measurements of the Body. By Georges Dreyer, C.B.E., M.A., M.D., Fellow of Lincoln College, Professor of Pathology in the University of Oxford. In collaboration with George Fulford Hanson. With a Foreword by Charles H. Mayo, M.D., Rochester, Minn. Cloth,128 pages, with ....IV Tables, Price $3.50 net. New York: Paul B. Hoeber.

This is a book that should command the attention of all physicians who are interested in industrial medicine, actuaries of insurance companies, Public Health nurses and settlement workers, for the reason that unlike most books on the same lines, the author contends that the occupation of the individual plays a large part in his physical dimensions.

In the past, insurance companies have had hard-and-fast rules as to what the physical dimensions should be to make the applicant acceptable irrespective of his occupation, and the same remark applies to all those investigators of physical fitness who have followed the matter with more or less interest. Dr. Dreyer divides all workers into three classes and shows the differences in the physical measurements between Class A and Class B men who have undergone prolonged physical training, or have an occupation which leads to muscular development, and men of the professional and business classes. Class C contains those who lead an extremely sedentary life, which it can readily be understood makes for a greater degree of underdevelopment than would obtain among those of Class A or B. Hence the new note in a book on physical fitness and one that is inclusive of matters which have been overlooked by other authors, and on account of their neglect have given a one-sided account of the matter.

To quote Dr. Mayo who wrote the Foreword: "The importance of the physical fitness of man has been only partially appreciated in the estimate of prognosis by physicians in the examination of the sick and in the measurement of the lung capacity by examiners for insurance companies.

Dr. Georges Dreyer has shown that the estimation of vital capacity is more than a mere test, that it indicates the tendency to health and resistance to disease, and that in a prognosis of life's duration it parallels very closely the results of a general examination."

That the theories advanced by Dr. Dreyer are sane, cannot fail to be apparent at once to the physician who reads this book, and no doubt will not be long in attracting the attention of the actuaries of our various insurance companies. What with the Public Health Service and settlement workers already following the precepts laid down in this book and the strides made in industrial medicine in apportioning physical fitness on scientfiic lines, it will behoove all insurance companies to take into consideration, not lightly but with seriousness, the moment of a thorough understanding of the variations in physical measurements as these obtain normally in the man who does hard physical work, the man who does light physical work, and the man who leads a sedentary existence. Only in this way will insurance companies meet the problem in a just manner as to who should be accepted and who should be refused.

ESSAYS ON SURGICAL SUBJECTS, By Sir Berkeley Moynihan, K.C.M.G., C.B., Leeds, England. Octavo of 253 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1921. Cloth, $5.00 net.

During the past decade Moynihan has writ-

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ten and read several essays of more than passing interest. These have, from time to time, been published singly in various of the current journals. Now we have them offered to us under one cover, and we do not know when we have read anything which has afforded us more pleasure, for the writer is so commonsense and conservative in his expressions, as to be a relief to those who have had to wade through the radical pyrotechnics which have so frequently crept into recent medical literature.

This is not a text-book on surgery, nor, does it cover a multitude of subject, and were the essay, "The Ritual of a Surgical Operation," the only thing the book contained, it would be still very much worth one's while, for in this essay there is a wonderful exhibition of common sense. It is a something that every physician should read; not once but many times, and until the reader becomes "letter perfect" in his knowledge thereof, for that one essay tells us what we should and should not do in connection with a surgical operation. Perhaps, did that essay become the common property of every physician, we would see fewer of those so-called "secondary infections" and other unpleasant things, due to errors in our "ritual."

There are eight other essays included in the book and each has its peculiar interest. The last one may be of more than passing interest at this particular time of rehabilitation of our soldiers, for it has to do with "The Surgery of the Chest in Relation to Retained Projectiles." In this particular offering Moynihan goes into very considerable detail regarding the technic of treatment of this branch of surgery and in addition to the text, which is clear, the working technic is further elucidated by illustrations, which are original in character, and which show the various steps of operation.

Others of the essays afford much in the way of instruction, as well as affording the reader much pleasure.

GENERAL PATHOLOGY—An Introduction to the Study of Medicine. Being a Discussion of the Development and Nature of Processes of Disease. By Horst Oertel, Strathcona Professor of Pathology and Director of the Pathological Museum and Laboratories of McGill University and of the Royal Victoria Hospital, Montreal, Canada. Cloth, Pp. 357, with Illustrations. Price $5.00 net. New York: Paul B. Hoeber.

It is not overpraise to state that this work of Oertel's is one of the outstanding books of the day. Written in a style that is commendable and in the scientific spirit without which every book on the subject of pathology falls short of being in the first rank, it gives the reader a thorough interpretation of all the problems in pathology, some of which no doubt have perplexed him on account of his limited knowledge, due to the fact that he has never been fortunate enough to acquire an illuminating book on the subject.

The subject of general pathology has too long been the *bete noire* among physicians in general, even among those who lay claim to being well versed in all subjects of medicine. The reason for this is that most physicians—the majority—have for some unexplainable reason regarded the study of general pathology as too abstruse and too wearisome a subject to cope with, and have relegated, on account of this attitude, its interpretation to those men in the medical profession who are specialists in pathology.

While there are good reasons for this attitude, as regards a large number of books on general pathology, in the case of Oertel's work a front of this nature would be a detriment to the busy practitioner, for reasons which should be mentioned here why Oertel's work commends itself to the thousands of physicians throughout the country, and they are as follows: Pathological processes are regarded as expressions of physico-chemical laws; the great educational value which accrues from a study of the historic development of ideas and hence an understanding of current ideas; the visualization of possible pathological occurrences based on the anatomical conceptions of the subject.

Any book on general pathology that has reasons such as the three mentioned above, has an asset which should bespeak a wide circle of readers; and when added to these are a simplicity of presentation and clarity of thought that are evidenced on every page, it cannot be gainsaid, in all fairness to the author, that at last the American medical profession has a book at hand that is of so unusual a nature that it must be considered a hall-mark in medicine.

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DEPARTMENT OF ELECTROTHERAPEUTICS.

WILLIAM MARTIN, M.D., Editor
Atlantic City, New Jersey.
Late President, American Electrotherapeutic Association.

Auto-Condensation.

During recent years the treatment of blood pressure has come to the front in a way that merits consideration, and particularly since the method of its treatment electrically is not generally understood. While this paper is not primarily a therapeutic one, it is almost impossible to consider the auto-condensation method of applying the high frequency current without some consideration of its use in this condition.

There are two methods of giving this treatment. The original method of Apostoli's, but what is now known as the D'Arsoval method, is the one of preference generally. With this it is essential to have an unidirectional current of high voltage such as is obtained from a Rhumkorf coil or a very powerful static machine. The current serves for charging a pair of Leyden jars of a size suitable to the charging current. Between the Leyden jars is placed a spiral of stout copper wire, with about 18 turns. One end of this spiral is connected to metal sheet long enough to cover the full length of the couch or table. Over this metal sheet is placed some insulating material to prevent the passage of sparks. About three layers of felt making a thickness of three inches is sufficient. The patient lies upon this, and he is connected with the other end of the solenoid by means of a metal handle which he holds. The patient is thus one armature of a condensor, and the metal sheet on the couch is the other armature, and the insulating material or dielectric, is the same as the glass of the Leyden jar. It seems best to attach the patient to the side of the solenoid where the body becomes charged with positive electricity. He should be connected to the Leyden jar which is attached to the negative pole of the machine. In this way the outer armature of the Leyden jar is positively charged. A patient connected in this manner is subjected to extremely rapid electro-static charges surging back and forth through the body. The longer the spark in the detonating chamber, the more distinct becomes the polar effect. As the result of the arrangement described, we obtain a current of relatively high voltage and lower amperage than is the case when a transformer and a series multiple spark gap is employed. There is less heat effect. The longer oscillations thus produced act as a molecular bombardment of the tissues, exert a marked effect on metabolism, and have a very quieting effect upon the patient.

The other method of administering auto-condensation is by the use of a specially built chair, which is covered with a metal over which is placed an insulating material such as fiber, compressed. This chair has a foot rest so covered, and metal knobs on the arms for the hands, which knobs are connected with a suitably fixed wire. One end of the solenoid is connected with the back and foot rest of the chair and the other side of the solenoid to the knobs. The patient sits in the chair with shoes removed so as to insure an even distribution of the current, and with his hands upon the knobs. The current charge is according to the exigencies of the case, but enough to comfortably warm the whole body. This may be carried to an intense heating, with an increase of body temperature and profuse diaphoresis.

The first method appears to have the better effect upon the blood pressure, and also upon metabolism. For elimination of the body waste, the second

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method would appear to be of greater value. Examination of the urine following these treatments shows an increase of its volume and amount of solids. As much as a daily increase of 300 c.c. and from 5 to 10 gms. of solids have been shown, and this increase has continued for some days after the treatments were stopped, which demonstrates that the effect upon cellular metabolism continued for some time.

The heating of the tissues of the whole body is followed by an active hyperemia, stimulated metabolic processes, increased elimination as before stated, also shown by the greater amount of CO2 in the expired air. We also find that there is a condition produced in the tissues that is conductive to absorbtion of exhudates, which is enhanced when autocondensation is used in conjunction with diathermy. The vaso-dilatation produced by autocondensation also allows of medication being brought into a more intimate contact with the tissues, which in turn offers better results of the medication. This fact is evidenced by the ability of the patient to take larger doses of such remedies as the iodides and bromides and with greater tolerance than before the treatment was instituted.

These facts are the result of considerable experience of a large number of scientific physicians who have taken up this line of therapy with the view of giving the patient the best means toward relief from suffering. In conjunction with these clinicians there have been experimenters who have carried on experiments along various lines who have found that their results corresponded to that of the clinicians, which has cleared the haze of doubt very materially from the subject and substantially placed it upon a scientific basis.

When the subject of hypertension is taken up in some subsequent paper, the subject of autocondensation can be given added space and perhaps be placed before the readers in a more concise way illustrating its usefulness to better advantage. To those who may decide to test out the methods outlined, it is to be hoped that they will use judgment as to the type of case suitable and the proper amount of current dosage, as these matters are of importance. The main thing aside from this is that intelligent use of autocondensation will dispose of the prejudice that has been prevalent in the past and give it its proper place in therapeutics.

DEPARTMENT OF NURSING.

E. MILDRED DAVIS, A.B., R.N., Editor.
Superintendent Bayonne Hospital and Dispensary, Bayonne, New Jersey.

Abstracts from the American Journal of Nursing, August, 1921.)

The Occidental Graduate Nurses' Association of Korea is composed of graduates from America, Canada and Australia. Their annual convention was held at Severance Hospital, Seoul, Korea, last May.

Hospital work in that country is not thirty years old, yet the convention program resembled those of the United States or Canada. Several hospitals have adopted an eight-hour day for nurses, and conduct a preliminary course of six months theoretical instruction.

A large public meeting was held in one of the churches, celebrating the one hundred and first birthday of Florence Nightingale. The Occidental nurses appeared in white uniforms. There were no two graduates from the same hospital. The graduate Korean nurses wore white uniforms and were followed by students from the Severance and Eastgate Hospitals, who appeared in blue uniforms, with white aprons and caps. Seventy Japanese nurses were dressed in kimonos and wore wooden sandals. The program was conducted in three languages—English, Korean and Japanese.

The League of Red Cross Societies has decided to organize a new course for nurses at Bedford College, which is a department of the University of London.

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The course conducted at King's College for Women last year offered an International Training Course for Public Health Nurses and was attended by nineteen nurses from eighteen different countries.

National Red Cross Societies have been requested to offer scholarships to enable Red Cross nurses to take the course at Bedford College, which will be similar to the one offered last year at King's College.

The first graduating exercises of the Army School of Nursing were conducted at the Walter Reed Hospital, Washington, D. C., June 16th, 1921, with 404 graduates. Commencement exercises were held at the Presidio in California, Letterman General Hospital, July 14th, with 108 graduates. Both training schools will continue their courses.

ETHICS AND ITS RELATION TO NURSING. (*Abstracted from "The Pacific Coast Journal of Nursing.*)

The schools of nursing are constantly drilling and disciplining the womanhood of the nurse. The development of correct habits of life, the right character and the right attitude of mind are important features of her training. The student nurses are able to apply ethics to their daily life when they are under the constant personal influence or supervision of the superintendent of nurses or her assistants.

Graduate nurses, as they go forth to other fields of nursing, are often judged by their ethics. Disregard of nursing ethics may be due to inadequate training in this branch of nursing science, or to a lack of the proper sense of honor. "A nurse is successful in her work, not only by what she knows how to do, but by what she is."

TEACHERS COLLEGE OFFERS FIVE-YEAR NURSING COURSE. (*Abstracted from "The Modern Hospital," August,* 1921.)

A five-year course, which combines the advantages of college work and nurses' training, is now offered at Teachers College in New York City. The first two years are spent at the college, where the student receives instruction in English, history, languages, and other cultural subjects, which are considered fundamental in a college training. She may take advantage of the social and intellectual opportunities which the college offers. The third and fourth years are spent in the Presbyterian Hospital or St. Luke's Hospital Training School for Nurses, where the fundamental professional training is given. A fairly large proportion of this time is spent in practical nursing service. The fifth year is elective. The student is permitted to select one of the many branches of nursing and devote herself to this specialty.

Y. W. C. A. STARTS MOVEMENT TO BROADEN NURSES' HORIZON. (*Abstracted from "The Modern Hospital," August,* 1921.)

One objection to the nursing profession has been that it gives no opportunity for the broad influences of the outside world.

The Y. W. C. A. has admitted student nurses to their summer conferences. Now, branches of the Y. W. C. A. will be established in several training schools. The University of California Hospital Training School reported a 90 per cent membership and marked improvement in the spirit of the student body.

We don't exactly know the daddy of Section 10, but we would like to gamble a bit that he is a guy who sits about and cusses Christian scientists, chriopractors, osteopaths and all the other drugless healers and wants to know why they are not prosecuted.

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FIRST—That vaccination against Typhoid only does not protect against Paratyphoid "A" or "B", but that it does protect against Typhoid.

SECOND.—That vaccination against Paratyphoid "A" protects against that infection but does not protect against Typhoid or Paratyphoid "B".

THIRD.—That vaccination against Paratyphoid "B" likewise protects against that infection only.

FOURTH.—That vaccination against all three infections does definitely protect against all three.

FIFTH.—**That the protection** conferred **and the results of agglutination tests, are identically the same whether the individual is immunized against each organism separately** or **whether the vaccines are given in combination.**

SIXTH.—That the "Non-Specific-Reaction" of Typhoid vaccination is of no avail as a protection against the closely allied Paratyphoid infections.

Of course it is not always safe to reason from analogy. On the other hand is it not well to preserve the open mind and consider if there may not be merit in combinations of vaccines other than Typhoid-Paratyphoid, even though the immunizing response is less distinct and of shorter duration?

Paracelsus, Harvey, Jenner, Pasteur, all were men of "the open mind". They broke down the barriers set by authority in their times, and it seems to us a sad return to old traditions to insist that only those things which have the seal of official, or quasi-official, approval may ethically be included in the physician's armamentarium.

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